

**REMARKS**

Claims 1-12, 14-18, 20-24, and 26-29 are pending in this application. By this Amendment, claim 1 is amended, claims 13 and 19 are canceled, and claim 29 is added. Support for the amendments may be found in the original claims and, for example, in the specification, at page 11, line 24 - page 12, line 1, and page 21, lines 20-24. No new matter is added.

In view of the foregoing amendments and the following remarks, reconsideration and allowance are respectfully requested.

**I      Obviousness-Type Double Patenting Rejections**

The Office Action provisionally rejects under the judicially created doctrine of obviousness-type double patenting:

- (1)      Claims 1-24 and 26 as being unpatentable over claims 1-28 of co-pending Application No. 11/822,111 in view of U.S. Patent No. 4,853,454 to Merger et al. ("Merger") and U.S. Patent No. 5,116,931 to Reisch et al. ("Reisch");
- (2)      Claims 1-24 and 26 as being unpatentable over claims 1-30 of co-pending Application No. 12/000,763 in view of Merger;
- (3)      Claims 1-24 and 26 as being unpatentable over claims 1-25 of co-pending Application No. 10/501,074 in view of U.S. Patent No. 4,853,454 to Merger;
- (4)      Claims 1-24 and 26 as being unpatentable over claims 1-21 of co-pending Application No. 10/501,078 in view of Merger and Reisch;
- (5)      Claims 1-24 and 26 as being unpatentable over claims 1-31 of co-pending Application No. 10/522,412 in view of Merger;
- (6)      Claims 1-24 and 26 as being unpatentable over claims 1-25 of co-pending Application No. 11/470,588 in view of Merger; and

(7) Claims 1-24 and 26 as being unpatentable over claims 1-25 of co-pending Application No. 12/056,043 in view of Merger.

By this Amendment, claims 13 and 19 are canceled, rendering their rejection moot.

Because the cited co-pending applications have not issued, filing a Terminal Disclaimer to obviate provisional double-patenting rejections is premature. See MPEP §706.02(k). Applicants respectfully request that the double patenting rejections be held in abeyance.

**II. Rejections Under 35 U.S.C. §103**

**A. Claims 1-5, 9, 11-16, 19, 20, 23, 24, 26, and 28**

**1. Merger and Pedain**

The Office Action rejects claims 1-5, 9, 11-16, 19, 20, 23, 24, and 26-28 under 35 U.S.C. §103(a) as having been obvious over Merger in view of U.S. Patent No. 4,895,883 to Pedain et al. ("Pedain"). By this Amendment, claims 13 and 19 are canceled, rendering their rejection moot. As to the remaining claims, Applicants respectfully traverse the rejection.

Claim 1 is directed to a two-pack polyurethane composition wherein "the second pack **B** comprises water, the water being in free form or reversibly bound to a carrier, as well as at least one polyaldimine **B1**, which is synthesized from at least one polyamine **PA** with aliphatic primary amino groups and at least one low-odor aldehyde **ALD** by a condensation reaction with elimination of water, the condensation reaction being an equilibrium reaction where the equilibrium is mainly shifted toward the polyaldimine **B1**." Furthermore, claim 1 recites that "the polyaldimine **B1** of the second pack **B** is used in an amount of 0.1 to 0.99 equivalents of aldimine groups per equivalent of isocyanate groups of the polyurethane prepolymer **A1** of the first pack **A**." The applied references would not have rendered obvious the claimed polyurethane composition for at least the following reasons.

Merger is directed to a storage-stable, moisture-cured, single-component polyurethane system comprising a polyurethane prepolymer having an NCO content of from about 1 to 10 weight percent and at least one polyaldimine. *See Merger, Abstract.* Specifically, Merger discloses a single-component polyurethane system comprising a polyaldimine, and molded articles which are prepared by "mixing the single-component polyurethane system with water and then placing the mixture into a mold." *See Merger, column 4, lines 40-45.* Thus, Merger merely teaches a single-component system comprising a polyurethane prepolymer having a polyaldimine, where water may be added to prepare a molded article, and does not disclose a second component comprising water and a polyaldimine. As acknowledged by the 9/21/2010 Office Action, Merger does not teach that the polyaldimine and water are separate from the polyurethane prepolymer before adding the two together. *See Office Action, page 11.*

The Office Action applies Pedain for allegedly teaching polyurethane/urea prepared from polyurethane prepolymers and mixtures of amines including polyaldimines and water. *See 9/21/2010 Office Action, page 11.* However, an ordinarily skilled artisan would not have had any reason or rationale to apply the teachings of Pedain, in combination with Merger, to achieve the claimed polyurethane composition.

Pedain is directed to polyurethane ureas obtained by reacting a hydrophilic NCO prepolymer with an aldimine or ketimine-containing hardener mixture in the presence of water and organic solvents. *See Pedain at col. 1, lines 34-47.* Pedain teaches that the polyurethane composition is used in a two-component PU spray gun. *See Pedain at col. 11, lines 11-19.* The reaction of the constituents to form the polyurethane composition is extremely fast, as the reaction begins immediately in the mixing tube of the spray gun. *See Pedain at col. 11, lines 15-22.*

However, Pedain fails to teach that "the second pack **B** comprises water, the water being in free form or reversibly bound to a carrier, as well as at least one polyaldimine **B1**,

which is synthesized from at least one polyamine **PA** with aliphatic primary amino groups and at least one low-odor aldehyde **ALD** by a condensation reaction with elimination of water, the condensation reaction being an equilibrium reaction where the equilibrium is mainly shifted toward the polyaldimine **B1**" or that "the polyaldimine **B1** of the second pack **B** is used in an amount of 0.1 to 0.99 equivalents of aldimine groups per equivalent of isocyanate groups of the polyurethane prepolymer **A1** of the first pack **A**," as recited in claim 1.

As explained in the present specification, page 11, last paragraph - page 12, first paragraph, it is through the condensation reaction with elimination of water where the equilibrium is mainly shifted toward the polyaldimine that results in the synthesis of the polyaldimine **B1**. In other words, "when a polyamine with aliphatic primary amino groups is mixed with at least a stoichiometric amount of an aldehyde, the corresponding polyaldimine is spontaneously formed, regardless of whether or not the water eliminated in the reaction is removed from the reaction mixture." *See* specification, page 12, first paragraph.

An ordinarily skilled artisan looking to produce a two-pack polyurethane composition according to claim 1 would not look to Pedain to cure deficiencies of Merger. Specifically, based on the teachings of Merger, a person skilled in the art would not use polyamines as a second component, as taught by Pedain, let alone polyaldimines in the presence of large amounts of water which, according to conventional knowledge of *Le Chatelier's Principle*, would shift the equilibrium to the polyamine side, rather than to the side of the polyaldimine (despite the presence of water), as required by claim 1. *See* specification, page 28, which states:

When the two components **A** and **B** are mixed, the hydrolyzed form of polyaldimine **B1** reacts with the isocyanate groups, where formally a reaction occurs between the amino groups and the isocyanate groups; then the polyurethane composition at least partially cures. As already mentioned above, the equilibrium in the second component **B**, between the aldimine groups and the water on the one hand and the amino groups

and the aldehyde on the other hand, is strongly shifted toward the aldimine groups and the water.

As furthermore explained on page 27 of the specification:

This fact [complete curing] is surprising to the person skilled in the art; it would be expected that for laminar mixing of polyaldimines into an isocyanate-containing polyurethane composition, at the layer boundaries zones would form which would not cure properly and therefore would remain soft, because there the ratio of polyaldimine groups to isocyanate groups is clearly in excess of stoichiometric.

Therefore, an ordinarily skilled artisan looking to produce a polyurethane composition according to claim 1 would not have combined the asserted references because, even in combination, the asserted references fail to teach "the second pack **B** comprises water, the water being in free form or reversibly bound to a carrier, as well as at least one polyaldimine **B1**, which is synthesized from at least one polyamine **PA** with aliphatic primary amino groups and at least one low-odor aldehyde **ALD** by a condensation reaction with elimination of water, the condensation reaction being an equilibrium reaction where the equilibrium is mainly shifted toward the polyaldimine **B1**" or that "the polyaldimine **B1** of the second pack **B** is used in an amount of 0.1 to 0.99 equivalents of aldimine groups per equivalent of isocyanate groups of the polyurethane prepolymer **A1** of the first pack **A**."

## 2. Pedain and Merger

The Office Action rejects claims 1-5, 9, 11-16, 19, 20, 23, 24, and 26-28 under 35 U.S.C. §103(a) as having been obvious over Pedain in view of Merger. By this Amendment, claims 13 and 19 are canceled, rendering their rejection moot. As to the remaining claims, Applicants respectfully traverse the rejection.

As discussed above, Pedain fails to teach at least the above features of claim 1. Therefore, as discussed above, an ordinarily skilled artisan would not have had any reason or rationale to apply Pedain, in combination with Merger, to achieve the claimed polyurethane composition.

**3. Conclusion**

For at least these reasons, the applied references would not have rendered obvious claim 1. Claims 2-5, 9, 11, 12, 14-16, 20, 23, 24, and 26-28 depend from claim 1 and, thus, also would not have been rendered obvious by the asserted combinations of Merger and Pedain. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

**B. Claims 6-8, 10, 17, 18, 21 and 22**

The Office Action rejects under 35 U.S.C. §103(a):

- (1) Claims 6-8 and 10 as having been obvious over Merger in view of Pedain, and further in view of U.S. Patent No. 3,935,274 to Jacobsen et al. ("Jacobsen");
- (2) Claims 17 and 18 as having been obvious over Merger in view of Pedain, and further in view of Reisch;
- (3) Claims 21 and 22 as having been obvious over Merger in view of Pedain, and further in view of U.S. Patent No. 5,194,488 to Piestert et al. ("Piestert");
- (4) Claims 6-8 and 10 as having been obvious over Pedain in view of Merger, and further in view of Jacobsen;
- (5) Claims 17 and 18 as having been obvious over Pedain in view of Merger, and further in view of Reisch; and
- (6) Claims 21 and 22 as having been obvious over Pedain in view of Merger, and further in view of Piestert.

Claims 6-8, 10, 17, 18, 21 and 22 depend from claim 1 and, thus, contain all of the features of claim 1. Deficiencies of Merger and Pedain with respect to claim 1 are discussed above. Jacobsen, Reisch, and Piestert, which are applied by the Office Action for the additional features recited in claims 6-8, 10, 17, 18, 21 and 22, do not cure deficiencies of Merger and Pedain with respect to claim 1.

Thus, the applied references would not have rendered obvious claims 6-8, 10, 17, 18, 21 and 22. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

**III. New Claim**

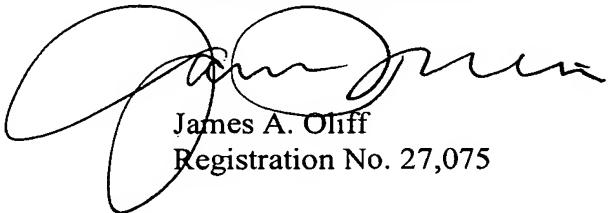
By this Amendment, new claim 29 is presented. New claim 29 depends from claim 1 and, thus, patentably distinguishes over the asserted references for at least the reasons discussed above, as well as for the additional features it recites. Prompt examination and allowance of claim 29 are respectfully requested.

**IV. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Request for Continued Examination  
Petition for Extension of Time

Date: July 27, 2011

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